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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,338	04/06/2001	Robert B. Staszewski	TI-30896	5665

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EXAMINER	
WARE, CICELY Q	

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/828,338	STASZEWSKI ET AL.	
	Examiner	Art Unit	
	Cicely Ware	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 April 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42 and 49-51* is/are rejected.

7)☒ Claim(s) *43-48* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 April 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because

   a. Fig. 1, element 18, applicant references as "LNA".

   b. Fig. 2, element 18, applicant references as "LAN". Examiner assumes "LNA" in correspondence with element 18 of Fig. 1.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

a. Pg. 1, examiner suggests applicant delete lines before title.

b. Pg. 2, examiner suggests applicant insert heading "Summary of Invention" for clarification purposes.

c. Pg. 2, examiner suggests applicant move Pg. 3, line 1 to Pg. 2 for clarification purposes.

d. Pg. 3, lines 1, 3 and 7, applicant uses "illustrat es". Examiner suggests using "illustrates" for clarification purposes.

e. Pg. 4, examiner suggests applicant continue with Pg. 5, line 1.

f. Pg. 5, line 18, examiner suggests moving this line to Pg. 6, line 1 for clarification purposes.

Appropriate correction is required.

3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 8, 10-13, 19, 20, 21, 30, 31,32, 37, 38, 40, 41, 49 and 50 are rejected under 35 U.S.C. 102(e) as being anticipated by Lindfors et al. (US Patent 6,438,366).

(1) With regard to claim 1. Lindfors et al. discloses a method of downconverting a first communication signal at a first frequency into a second communication signal at a second frequency that is lower than the first frequency, comprising (abstract, col. 1, lines 11-20, col. 10, lines 30-41: sampling a plurality of phases of each of at least two consecutive cycles of the first communication signal (col. 5, lines 51-67, col. 6, lines 18-26; and combining the sampled phases to produce the second communication signal (col. 6, lines 26-31, col. 7, lines 20-28, col. 10, lines 9-11) (Fig. 3 (301, 302, 303, 304, 305, 306, 307, 308), Fig. 4 (402, 403, 405)).

(2) With regard to claim 2, claim 2 inherits all the limitations of claim 1. Lindfors et al. further discloses wherein said sampling step includes sampling a plurality of phases of all cycles of the first communication signal (col. 5, lines 61-67, col. 6, lines 21-26).

(3) With regard to claim 8, claim 8 inherits all the limitations of claim 1. Lindfors et al. further discloses providing an oscillator signal having a third frequency that is lower

than said first frequency, and using the oscillator signal to produce a digital signal for use in sampling the first communication signal (col. 1, lines 52-65).

(4) With regard to claim 10, claim 10 inherits all the limitations of claim 1. Lindfors et al. further discloses wherein the first communication signal is an RF communication signal (col. 1, lines 45-48).

(5) With regard to claim 11, claim 11 inherits all the limitations of claim 1. Lindfors et al. further discloses in (Fig. 4) wherein said sampling step includes applying a plurality of digital pulses respectively to a plurality of sampling gates to sample respectively the phases of said consecutive cycles (col. 5, lines 51-67, col. 6, lines 18-26).

(6) With regard to claim 12, claim 12 inherits all the limitations of claim 1. Lindfors et al. further discloses providing an oscillator signal having a third frequency that is lower than the first frequency; producing in response to the oscillator signal a sampling pulse signal having digital pulses for use in sampling the first communication signal; using the pulses of the sampling pulse signal to sample selected phases of the first communication signal (col. 1, lines 52-65, Fig. 8, col. 9, lines 44-52).

(7) With regard to claim 13, claim 13 inherits all the limitations of claim 12 and 10.

(8) With regard to 19, claim 19 inherits all the limitations of claim 1.

(9) With regard to claim 20, claim 20 inherits all the limitations of claim 19. Lindfors et al. further discloses in (Fig. 3) wherein said sampler includes a plurality of sampling switches coupled to said input for sampling the first communication signal (col. 5, lines 51-67).

(10) With regard to claim 21, claim 21 inherits all the limitations of claim 19. Lindfors et al. further discloses wherein said sampling step includes sampling a plurality of phases of all cycles of the first communication signal (col. 5, lines 61-67, col. 6, lines 21-26).

(11) With regard to claim 30, claim 30 inherits all the limitations of claim 19. Lindfors et al. further discloses in (Fig. 8) wherein said combiner includes filters respectively for receiving selected ones of the sampled phases (col. 7, lines 39-41, col. 9, lines 44-52).

(12) With regard to claim 31, claim 31 inherits all the limitations of claims 1 and 8. Lindfors et al. further discloses (Fig. 3 (301, 302, 030, 304), Fig. 8) a sampler coupled to said input and said digital pulse generator, said sampler responsive to the pulses of the sampling pulse signal for sampling selected phases of the first communication signal (col. 9, lines 44-52).

(13) With regard to claim 32, claim 32 inherits all the limitations of claim 31. Lindfors et al. further discloses wherein the first communication signal is an RF communication signal (col. 1, lines 45-48).

(14) With regard to claim 37, claim 37 inherits all the limitations of claim 1. Lindfors et al. further discloses in (Fig. 8) wherein said sampling step includes sampling said phases such that said combining step also provides a filter function (col. 7, lines 39-41, col. 9, lines 44-52).

(15) With regard to claim 38, claim 38 inherits all the limitations of claim 12. Lindfors et al. further discloses in (Fig. 8) wherein said step of using pulses includes

using the pulses of the sampling pulse signal to sample selected phases such that said step of using sampled phases also provides a filter function (col. 7, lines 39-41, col. 9, lines 44-52).

(16) With regard to claim 40, claim 40 inherits all the limitations of claims 19 and 37.

(17) With regard to claim 41, claim 41 inherits all the limitations of claims 31 and 37.

(18) With regard to claim 49, claim 49 inherits all the limitations of claim 12. Lindfors et al. further discloses (Fig. 8) wherein said step of using pulses includes using a first pulse of the sampling pulse signal and a plurality of delayed versions of said first pulse to sample selected phases of the first communication signal (co. 5, lines 51-67, col. 7, lines 39-41, col. 9, lines 44-52).

(19) With regard to claim 50, claim 50 inherits all the limitations of claims 15 and 49.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 3-7, 9, 14-18, 22-29, 33-36, 39, 42 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindfors et al. (US Patent 6,438,366) as applied to claims 1, 8, 12, 31 and 37, in view of Bazarjani et al. (US Patent 5,982,315).

(1) With regard to claim 3, claim 3 inherits all the limitations of claim 1. Lindfors et al. further discloses wherein said sampling step includes producing a sampling pulse signal having a plurality of digital pulses, each of said pulses having a pulse width and using the pulses of the sampling pulse signal to sample the first communication signal (col. 5, lines 52-54, 56-67).

However Lindfors et al. does not disclose each of said pulses having a pulse width that is approximately equal to but wider than a half period of the first communication signal.

However Bazarjani et al. discloses in (Fig. 6A and 6B) wherein each of said pulses having a pulse width that is approximately equal to but wider than a half period of the first communication signal (col. 12, lines 22-25).

Therefore it would have been obvious to one of ordinary skill in the art to modify Lindfors et al. to incorporate wherein each of said pulses having a pulse width that is approximately equal to but wider than a half period of the first communication signal to

allow the capacitors and amplifier more time to settle to the final value (Bazarjani et al., col. 12, lines 57-60).

(2) With regard to claim 4, claim 4 inherits all the limitations of claim 3. Lindfors et al. further discloses wherein said sampling step includes using one of the pulses of the sampling pulse signal to sample one of the phases of said consecutive cycles, and using a plurality of delayed versions of said one pulse to sample other phases of said consecutive cycles (col. 5, lines 51-67, col. 6, lines 18-26, col. 10, lines 30-37).

(3) With regard to claim 5, claim 5 inherits all the limitations of claim 4. Lindfors et al. further discloses in (Fig. 3) applying said one pulse and the delayed versions thereof respectively to a plurality of sampling switches (302, 303, 304) (col. 5, lines 51-67, col. 6, lines 18-26, col. 10, lines 30-37).

(4) With regard to claim 6, claim 6 inherits all the limitations of claim 4. Lindfors et al. further discloses in (Fig. 7) using a series of delay elements driven by the sampling pulse signal to produce the delayed versions of said one pulse (col. 9, lines 17-30).

(5) With regard to claim 7, claim 7 inherits all the limitations of claim 4. Lindfors et al. further discloses wherein adjacent pulses of the sampling pulse signal are separated by an amount of time that corresponds to a predetermined number of cycles of the first communication signal (col. 5, lines 61-67, col. 8, lines 25-31).

(6) With regard to claim 9, claim 9 inherits all the limitations of claim 8. Bazarjani et al. further discloses in (Fig. 6A and 6B) wherein the digital signal has a plurality of digital pulses, each of said pulses having a pulse width that is approximately equal to but wider than a half period of the first communication signal (col. 12, lines 22-25).

(7) With regard to claim 14, claim 14 inherits all the limitations of claims 12 and 7.

(8) With regard to claim 15, claim 15 inherits all the limitations of claims 12 and 9.

(9) With regard to claim 16, claim 16 inherits all the limitations of claim 15. Lindfors et al. further discloses wherein the first communication signal is an RF communication signal (col. 1, lines 45-48).

(10) With regard to claim 17, claim 17 inherits all the limitations of claim 15. Lindfors et al. further discloses wherein adjacent pulses of the sampling pulse signal are separated by an amount of time that corresponds to a predetermined number of cycles of the first communication signal (col. 5, lines 61-67, col. 8, lines 25-31).

(11) With regard to claim 18, claim 18 inherits all the limitations of claim 17. Lindfors et al. further discloses in (Figs. 1 and 2) providing an oscillator signal having a third frequency that is lower than said first frequency, and producing the sampling pulse signal in response to the oscillator signal (col. 1, lines 52-65).

(12) With regard to claim 22, claim 22 inherits all the limitations of claims 19 and 3.

(13) With regard to claim 23, claim 23 inherits all the limitations of claim 22. Lindfors et al. further discloses wherein said sampler has an input for receiving one of said digital pulses and a plurality of delayed versions of said one digital pulse, said sampler responsive to said one digital pulse for sampling one of the phases of said consecutive cycles, and said sampler responsive to said delayed versions of said one pulse for sampling other phases of said consecutive cycles (col. 5, lines 51-67, col. 6, lines 18-26, col. 10, lines 30-37).

(14) With regard to claim 24, claim 24 inherits all the limitations of claim 23. Lindfors et al. further discloses in (Fig. 3 and Fig. 7) a delay element structure coupled to said digital pulse generator and said sampler for producing the delayed versions of said one pulse and providing the delayed versions to said sampler input (col. 5, lines 51-67, col. 6, lines 18-26, col. 9, lines 17-30, col. 10, lines 30-37).

(15) With regard to claim 25, claim 25 inherits all the limitations of claims 23 and 7.

(16) With regard to claim 26, claim 26 inherits all the limitations of claim 23. Lindfors et al. further discloses in (Fig. 3) wherein said sampler includes a plurality of sampling switches coupled to said first-mentioned input and to said sampler input for respectively sampling phases of said consecutive cycles of the first communication signal in response to said one pulse and said delayed versions of said one pulse (col. 5, lines 51-67, col. 6, lines 18-26).

(17) With regard to claim 27, claim 27 inherits all the limitations of claim 22. Lindfors et al. further discloses in (Figs. 1 and 2) an oscillator coupled to said digital pulse generator for producing an oscillator signal having a third frequency that is lower than said first frequency, said digital pulse generator responsive to said oscillator signal for producing said sampling pulse signal (Fig. 3, col. 1, lines 52-65).

(18) With regard to claim 28, claim 28 inherits all the limitations of claims 27 and 17.

(19) With regard to claim 29, claim 29 inherits all the limitations of claims 19 and 16.

(20) With regard to claim 33, claim 33 inherits all the limitations of claims 31 and 17.

(21) With regard to claim 34, claim 34 inherits all the limitations of claims 31 and 15.

(22) With regard to claim 35, claim 35 inherits all the limitations of claim 34. Lindfors et al. further discloses wherein the first communication signal is an RF communication signal (col. 1, lines 45-48).

(23) With regard to claim 36, claim 36 inherits all the limitations of claim 34. Lindfors et al. further discloses wherein adjacent pulses of the sampling pulse signal are separated by an amount of time that corresponds to a predetermined number of cycles of the first communication signal (col. 5, lines 61-67, col. 8, lines 25-31).

(24) With regard to claim 39, claim 39 inherits all the limitations of claim 15. Lindfors et al. further discloses in (Fig. 8) wherein said step of using pulses includes using the pulses of the sampling pulse signal to sample selected phases such that said step of using sampled phases also provides a filter function (col. 7, lines 39-41, col. 9, lines 44-52).

(25) With regard to claim 42, claim 42 inherits all the limitations of claim 34. Lindfors et al. further discloses in (Fig. 8) wherein said sampler is operable for sampling said phases such that said combiner also provides a filter function (col. 7, lines 39-41, col. 9, lines 44-52).

(26) With regard to claim 51, claim 51 inherits all the limitations of claim 37. Bazarjani et al. further discloses in (Fig. 7A) wherein said sampling step includes

normally activating a plurality of sampling switches in a first temporal order to sample said plurality of phases, and providing said filter function by activating said plurality of switches in a second temporal order that differs from said first temporal order (col. 2, lines 21-30, col. 13, lines 26-28, 62-67, col. 14, lines 1-5).

Allowable Subject Matter

7. Claims 43-48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made record and not relied upon is considered pertinent to applicant's disclosure:

a. Fenton et al. US Patent 5,101,416 discloses a multi-channel digital receiver for a global positioning system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cicely Ware whose telephone number is 703-305-8326. The examiner can normally be reached on Monday – Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Cicely Ware

cqw
August 17, 2004

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